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ABSTRACT

In 1980, Oregon Research Institute implemented Programs to Advance Teen Health (PATH), a smoking prevention program that helps seventh and ninth graders learn to resist social pressures to smoke. This report describes PATH and discusses the reasons behind its smoking prevention strategy. The report first notes the importance of preventing teenagers from starting smoking and lists the social factors associated with cigarette use. The next section reviews two other smoking prevention programs. The authors then describe the PATH program and its use of questionnaires, classroom sessions, and peer modelling behavior to teach refusal skills. The program trains teenagers first to recognize peer, adult, or media pressures to smoke and then to make assertive refusals to give in to them. The authors cover procedures for getting parental consent for participation in PATH, teacher training, the initial three-day sessions, the followup "booster" session, and multiple questionnaire assessments of program impact. Final sections of the report discuss the social environment of smoking, the role of the first cigarette, and plans for future studies. Appendices provide copies of the parental consent letter and the smoking questionnaire. (RW)

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Oregon Research Institute's Smoking Prevention Program:

Helping Students Resist Peer Pressure

Herbert Severson, Carol Faller, Cheri Nautel,
Anthony Biglan, Dennis Ary,
and Edward Lichtenstein

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Preface

The mission of education is traditionally and rightly, we believe, defined to include promoting the health of the whole child--intellectual and social as well as physical. Educators who take seriously their responsibility for the physical well being of students have great reason to be alarmed at the damage done to teenagers' bodies by cigarettes, alcohol, and drugs.

We are pleased to bring to the attention of Oregon educators a program that shows considerable promise as a means of preventing large numbers of students from becoming habitual smokers. The program achieves this purpose not by coercing the students but by teaching them to refuse--with skill and grace--peer and situational pressures to smoke. Of course, these same refusal skills can also be put to good use by students when pressured to drink alcohol or experiment with drugs.

The Oregon Research Institute has implemented its federally funded smoking prevention curriculum in three Lane County school districts--Eugene, Springfield, and Bethel. By the end of the 1982 school year nearly 3,000 students will have been trained through the program.

We thank Herb Severson and his associates at O.R.I. for their willingness to describe their Program to Advance Teen Health. Educators who, after reading this Bulletin, want to incorporate the program into their own health curriculum can obtain copies of the curriculum guides by writing to Oregon Research Institute, 195 West 12th Avenue, Eugene, Oregon 97403.

Philip K. Piele

Executive Secretary

Authors' Preface

Project P.A.T.H. (Programs to Advance Teen Health) is a federally funded project that began in August 1979. It is funded for three years by the National Institute of Child Health and Development, which is a subdivision of the National Institute of Health. The principal investigators of the project are Herb Severson (Ph.D.), Anthony Biglan (Ph.D.), and Ed Lichtenstein (Ph.D.).

This OSSC Bulletin was authored by Herb Severson and Carol Faller (M.P.H.) with assistance from all other project personnel. The school intervention program is a collaborative effort of all project personnel but specific responsibilities should be noted. Herb Severson coordinates the school intervention and works closely with Carol Faller and Cheri Nautel on curriculum development and school entry. Carol and Cheri are both research assistants who train teachers to teach the program, conduct in-class assessments of students, supervise consent procedures, and observe and provide teacher feedback. Carol is primarily responsible for writing the program's curriculum. Cheri is in charge of managing all assessment procedures.

Dennis Ary (Ph.D.) is responsible for data analysis, statistical consultation, and experimental design. Anthony Biglan is primarily responsible for supervising other studies conducted within the grant and writing up the results of our work for publication. Additionally, he is the fiscal manager of the project. Ed Lichtenstein has worked in smoking cessation for many years and provides valuable consultation on all phases of the grant.

Oregon Research Institute is a private, nonprofit research institute

that has been in Eugene for over twenty years. It is made up of persons working on a number of federally funded research projects in the behavioral sciences. Herb Severson is the director of O.R.I.

P.A.T.H. is the acronym for Programs to Advance Teen Health. This title was chosen because project personnel want to continue involvement in a wide range of projects that promote healthy behavior by teens. We hope to use our knowledge of psychosocial factors to work effectively with other risk behaviors.

The P.A.T.H. project has requested additional funding to support further development and dissemination of the smoking prevention project, but the present project does not include any funds for dissemination.

Introduction

Cigarette smoking continues to be a major public health problem. The harmful effects of the habit have been well documented: Smokers have higher rates of coronary heart diseases, various bronchialpulmonary diseases, and carcinoma (cancer), especially of the lungs, than do non-smokers (U.S. Public Health Service 1974). Even though information on the dangers of smoking has been widely disseminated and health risks associated with smoking can be reduced by quitting (American Heart Association 1978), the reduction of cigarette consumption has been disappointing (Brenzelmann 1975).

Smoking cessation programs have been significantly improved. Nevertheless, smoking remains resistant to long-term modification (Bernstein 1969). Multicomponent programs have reported sustained abstinence of 33 percent in followups of a year or more and a recidivism rate of about 50 percent (Hunt and Bepalee 1974). It is becoming increasingly clear that efforts to develop prevention programs may have more impact on the overall reduction of cigarette usage than efforts to improve cessation programs.

Importance of Prevention

Most habitual smokers began smoking as teenagers. Prevention programs must be aimed at this age group in order to reduce regular smoking prior to the point of nicotine addiction. Despite increasing awareness of the health risks associated with smoking, the prevalence of smoking among teens remains high (USDHEW 1974). Recent surveys of teen smoking behavior reveal that cigarette usage has significantly increased among teenage girls and that experimentation has moved downward to younger grade levels (Chilton 1979). Smoking among girls aged 12-18 nearly doubled between 1968 and

and 1974 (USDHEW 1977), and most of the initial smoking experiences occurred before the tenth grade (16 percent), with an additional 10 percent occurring in grades ten through twelve. A recent national study indicated that by the end of the twelfth grade, 26 percent of the students report daily cigarette use, with an equal proportion of boys and girls (Johnston and others 1980).

It is clear from the data shown in table 1 that any effective prevention program must precede the rapid increase of daily cigarette use which occurs among teens and which predisposes them to become addicted smokers.

Table 1
Teenage Cigarette Smoking
Age by Sex

	<u>12, 13, 14</u>	<u>15, 16</u>	<u>17, 18</u>	<u>Total</u>
Never smoked or experimented only:				
Boys:	92.8	75.3	68.1	80.8
Girls:	92.3	81.8	63.9	81.0
Ex-smoker:				
Boys:	4.0	10.1	12.3	8.1
Girls:	3.4	5.9	9.1	5.8
Regular smoker:				
Boys:	3.2	13.5	19.3	10.7
Girls:	4.3	11.8	26.2	12.7

Source: Chilton Teenage Telephone Survey 1979

Factors Associated with Cigarette Use

Most studies show that a pattern of factors appears to be associated with the experimentation and the initiation of regular cigarette smoking (USDHEW 1977). Factors associated with increased probability of cigarette use include lower socioeconomic class, poorer educational achievement,

parental and sibling smoking, peer smoking, experiences of peer pressure, and desire to conform to group norms (USDHEW 1977).

Although the desire to smoke is maintained by the effects of nicotine, psychosocial variables appear to be crucial to the initiation and maintenance of smoking behaviors until those pharmacological effects have strengthened the dependency (Biglan and others 1979). The junior high school years (grades 7-9) appear to be a point where social influence processes have their most dramatic effect (Palmer 1970). Considering this paramount role of peer pressure during the adolescent period, it is not surprising that there is a strong correlation between a teenager's smoking behavior and that of his or her friends (Biglan and others 1980; Mischel 1976; Hurd and others 1978).

Federal funding of projects to develop and evaluate prevention programs has significantly increased in the past three years. Most of the current funded research in this area focuses on seventh grade students, since the most rapid increase in reported smoking occurs at this age.

Prevention Programs: Success or Failure?

Given the broad and pervasive psychosocial factors encouraging smoking, it is easy to understand why traditional health education programs fail to prevent the onset of regular smoking in teenagers. Almost all programs have emphasized smoking's long-term physiological effects such as cancer, emphysema, and heart disease (Dekker 1977). Generally, these programs have demonstrated some positive change in attitude and knowledge, but little or no effect on smoking behavior (Thompson 1978). Recently, however, more effort has been made to utilize our knowledge of psychosocial processes to develop interventions that will encourage healthy behaviors (Evans 1976). Although a thorough review of these interventions is beyond the scope of this paper, two programs exemplary of differing intervention foci will be briefly outlined.

The Houston Project

Dr. Richard Evans at the University of Houston has developed a multimedia program based on a strategy of deterrence through inoculation of nonsmokers (Evans 1976). Inoculation of nonsmokers is based on the concept of preparing students to resist pressure (McGuire 1974). The program utilizes video tapes and sixteen millimeter films that depict techniques for coping with peer pressure, parental smoking models, and media advertisements. Six coping techniques are modelled by students of approximately the same age as the subjects. Additional messages dramatize the immediate physiological consequences of smoking. These immediate effects include accelerated heart and respiration rates, increased blood pressure, vasoconstriction of the blood vessels in the extremities, and an increase in blood carbon monoxide levels.

Three experimental groups were established as a part of the Houston study. A full treatment group viewed four video tapes, each approximately ten minutes in length, on four consecutive days. The tapes presented information regarding smoking pressures and immediate health consequences. Brief questionnaires designed to measure motivation and ability to resist pressures to smoke were administered in conjunction with each video tape, followed by a focused discussion period directing students' attention to possible coping responses. Posters representing scenes from the video tapes were displayed in the classroom during the study to serve as a continuous reminder of the video message.

For comparison purposes, two other groups were also included in the study. A feedback-only experimental group received the posttest feedback concerning their class's smoking behavior, but no other treatment. A third group was referred to as a repeated measurement control group. This group was exposed to the nicotine film, was asked to contribute saliva samples, and was asked to report their smoking behavior as part of a questionnaire. Several other items on this questionnaire were directed at evaluating the students' acquisition of knowledge that could be largely derived only from the treatment tapes. A posttest control group was administered all measurement materials.

The results of a three-year investigation conducted in thirteen junior high schools in Houston, Texas, have been published (Evans and others, in press). Each intervention was focused on the seventh grade classroom, with subsequent assessment being done in eighth and ninth grades as followup. A novel procedure referred to as the "bogus pipeline" procedure was used to increase the accuracy and validity of self-reports of cigarette smoking. This procedure involved showing a brief video taped film

on how saliva was analyzed to determine saliva thiocyanate content, which is a byproduct of cigarette smoking. When students view this video tape prior to filling out self-report questionnaires, they have been shown to be much more accurate in their reporting of cigarette smoking activity (Evans and others 1977).

Evans and his colleagues found that the films and posters had a significant impact in the sense that the students' smoking rate was significantly affected by the intervention. The group that received the intervention, which included films, discussions, and posters, smoked less frequently than did other groups. This study demonstrated the potential of filmed peer models in reducing subsequent smoking behavior.

The results should be viewed with some caution, however. While the full treatment group experienced the greatest decrease in smoking rate, the repeated measurement control group also decreased its smoking rate when compared to the control group. It appears that merely the frequent assessment of students may have some impact on the rate at which they begin smoking cigarettes. This assessment effect was strongest during the first year of the project and washed out in subsequent assessments. In addition, although the results were statistically significant, this was due in part to the large number of students in the program (750 per group). The size of the effect leaves a lot of room for improvement. At the end of three years, Evans found that 9.5 percent of the treated subjects were smoking two or more cigarettes a day. While this is significantly lower than the level for control groups, actual differences ranged from 4.7 percent for one set of control groups to as little as 1.6 percent for another. A sizable amount of smoking is still going on among treated subjects, and there is plenty of room for improvement.

The study, however, does represent a major effort to identify factors that might be effective in reducing an adolescent's predisposition toward beginning and maintaining cigarette smoking. Dr. Evans and his colleagues must be commended for pioneering efforts in this area. Many components of subsequent smoking prevention programs can be directly attributed to their work. The primary limitations of the Houston program for general use concerns the video taped modeling films that provide the cornerstone of the program. The films were expensive to produce and are professionally done, but the student actors and situations may appear different enough to limit the effect on students from another part of the country. Additionally, we know that whereas video models are effective in teaching new behavior, local peer models and live practice are more powerful in affecting behavior (Bandura 1977).

Project CLASP

A second program that has had significant impact in the smoking prevention area is called "Project CLASP" (Counseling Leadership about Smoking Pressures). Project CLASP was created to teach adolescents about the pressures to smoke tobacco and to help them learn behaviors to resist these pressures. The projects' goals are thus based on the pioneering work of Evans. CLASP differentiates itself from previous projects, however, in that it employs high school students as peer leaders to deliver the intervention to seventh grade students. Peer leaders are assumed to be more effective than adults in influencing seventh grade students' behavior. The intervention, conducted by peer leader teams, included the following components:

1. Assertiveness skills for resisting pressure to smoke
2. Public statements by the students of their commitment to

not smoke regularly

3. Testimonials of regular smokers describing the ease of transition from casual to dependent smoking
4. Contests concerning how to resist pressures to smoke
5. Presentations of how to resist pressures to smoke
6. Role plays of resisting requests to smoke
7. Discussions on how to help others quit smoking

This was a seven-day classroom intervention utilizing slide shows, movies, small and large group discussions, skits, role playing, and individual written work. In the study, treatment and control schools were assessed in September, December, and June of the 1977-78 school year. Students provided breath samples (for carbon monoxide) and completed questionnaires regarding their smoking behavior. The data indicated that the treatment caused a significant decrease in reported smoking rates of seventh graders (McAlister and others 1979).

Project CLASP has been documented in films published by the National Cancer Institute. The problems with Project CLASP, however, are that it requires the recruitment, training, and use of a large number of skilled high school adolescent volunteers as peer leaders. Our own experience in the recruitment, training, and use of peer leaders has shown that the skills of the peer leaders vary greatly, that male peer leaders have been difficult to solicit, and that the need to excuse peer leaders from their classes can be detrimental to these students. Some peer leaders in our program reportedly suffered academically because of the frequent absences during both training and implementation.

Another difficulty with implementing the CLASP program is the requirement that the regular classroom teacher leave the class during the seven-day

intervention. Many schools are reluctant to have their classroom teachers turn over the class to adolescent peer leaders. CLASP authors believed that if the regular teacher remained in the classroom, students may not honestly respond in the group discussion.

The P.A.T.H. Prevention Program

The goal at Oregon Research Institute (O.R.I.) was to develop a program that could be easily implemented by any interested school or teacher with a minimum of outside assistance. Over the past two years, we have developed programs that can be implemented by classroom teachers as a part of their regular curriculum that require little or no assistance from research staff. It is our belief that, although the basic premises of both Project CLASP and the Houston program are accurate and valid, smoking prevention programs could be more effective by focusing on the actual training of refusal skills.

The more specific the modelling and practice experiences we can provide the student, the more likely it is that the student will use the refusal when offered a cigarette. Viewing filmed or taped models is only a beginning step in teaching specific refusal skills. We believe that live classroom modelling by peers, followed by repetitive practice with peer feedback, is more effective than filmed or taped models in teaching the necessary social skills. Our program is predicated on the hypothesis that the acquisition of these skills will significantly reduce the participants' smoking rate. If the goal is for the individual to be able to recognize peer, media, and parental pressures and in turn make a responsible, assertive refusal in that situation, it is more likely to occur if they can have frequent, live practice with their peers in the classroom.

The program that we are conducting and will describe in the rest of this paper is one based on the successes of previous prevention efforts. We have added specific behavior components which we hope will increase the effectiveness of prevention programs in changing a teenagers' response to peer pressures.

Implementation in the Schools

In the fall of 1980, we developed a prevention program that could be taught in the classroom by volunteering teachers. It was piloted in seventh grade health classes until we were confident that the program could be easily implemented, maintained student interest, and taught the skills we deemed important.

The P.A.T.H. (Programs to Advance Teen Health) smoking prevention project has been approved by the Bethel, Springfield, and Eugene School Districts. The results reported involve subjects from the Eugene and Springfield school districts. (The Bethel schools became involved in 1981, and we do not yet have their questionnaire results analyzed.) Five schools have participated (one junior high school and four middle schools), and ten teachers volunteered, were trained, and have taught the program. Thirty-seven classrooms were involved during the 1980-81 school year. Of these, thirty-two were grade 7, two were grade 8, and three were grade 9. A total of 706 subjects were involved in the project.

A major component of the project activities has been maintaining positive working relationships with the school district administrators and teachers. To facilitate the process, Smoking Prevention Advisory Committees were established for each school district during the early stages of the project. The committees are composed of area political and business leaders, as well as school district representatives, principals, teachers, and parents. The committees have been helpful in providing feedback on all procedures, as well as enlisting community support for the program.

The principals of involved schools and the participating teachers have periodically reviewed the project materials and provided feedback.

Modifications have been made accordingly. Teachers, who have had a great deal of influence in determining curriculum revisions, have expressed interest in and enthusiasm for the project.

Implementation of the smoking prevention project required that a school district approve the project's consent, testing, and intervention procedures. After district approval was obtained, individual seventh grade health teachers were asked to teach the smoking prevention curriculum as a part of their regular instruction. In volunteering to participate in the project, teachers agreed to integrate into their schedule a fairly structured series of events. These events are outlined in table 2.

Table 2

Program Events

Consent Procedures. One class period devoted to orienting students to the project and distributing parent information and consent materials.

Teacher Training. Two to four hours spent with a project staff to review the curriculum, view a video instruction tape, and role play the curriculum.

Assessment #1. One class period during which students with parental consent complete the smoking project questionnaire and two physiological tests--a breath and a saliva sample. Project staff conduct the assessment procedures.

Curriculum Intervention. Three consecutive class periods during which a social skills curriculum is taught by the classroom teacher to approximately one half of his or her randomly chosen classes.

Booster Session. One class period taught approximately two weeks after the intervention. Designed to remind students of the key components and provide more practice.

Assessment #2. Fifteen minutes of a class period for all the classes and all the students to complete an abbreviated form of the questionnaire. The procedure is conducted by project staff. This procedure has been deleted now that we use passive consents (see the section on consent procedures).

Assessment #3. (Followup). One class period during which students with parental consent complete the smoking project questionnaire and provide the breath and saliva samples as in the first assessment.

Consent Procedures

The consent procedure is designed to provide both parent and child with descriptive information about the assessment activities and the nature of the research project (a sample consent letter is included as Appendix A). Both parent and child are informed of the voluntary and confidential aspects of the project. The children are reminded throughout the project that their participation is voluntary and can be withdrawn at any point in the process. Students are given a code number, and all data is kept by this numerical system. Students are assured that data will be presented in group statistics only, thus eliminating the possibility of a student's data being inadvertently recognized. Approximately fifteen minutes of class time are devoted to reviewing the project activities with the students, answering questions, and preparing consent materials for mailing to the parents.

During the 1980-81 school year, we used a positive consent procedure in which both parent and child had to sign and return the consent card for the child to be assessed. With teacher encouragement and the use of a classroom contest for the highest percentage of returned consent cards (whether consent is given or withheld), the consent rate has averaged 60 percent. This rate is unfortunately too low, reflecting approximately a one-third reduction in the overall number of research subjects.

This positive consent procedure also had the effect of screening students who may be more likely to adopt smoking habits. As table 3 clearly shows, the consent students are very different from nonconsent students in their smoking of cigarettes. This comparison was done by going into seventh grade classrooms one week after the treatment had been conducted and asking every student to fill out a brief questionnaire on their use of alcohol, marijuana, and cigarettes for the past week. We asked

students if they had been offered a cigarette, had offered one to another person, or had accepted an offer. All nonconsent students were asked to remain anonymous on their questionnaires. It is clear from the results that we cannot evaluate the effect of a smoking prevention program if we depend on a consent procedure that allows us to evaluate just over half the students. The students who do not have affirmative parental consent appear to be at higher risk to become regular smokers, as their reported behavior is significantly different from the consent students.

Table 3

Comparison of Consent to Nonconsent Students

(N = 492 consent and 265 for nonconsent)

1. There is a significant difference in the percentage of smokers in the consent vs. nonconsent groups.

5 percent vs. 12 percent

(A smoker is a person who smoked at least one cigarette in the previous seven days).

2. There is a significant difference in the number of cigarettes smoked in the previous week between the consent and nonconsent groups.

$\bar{x}$ Consent = 0.64/week

$\bar{x}$ Nonconsent = 1.58/week

3. There is a significant difference between consent and nonconsent in the percentage of smoking alone.

Consent = 2.3 percent

Nonconsent = 9.7 percent

4. There is a significant difference between consent and nonconsent in the percentage that were offered cigarettes in the previous week.

Consent = 10.5 percent

Nonconsent = 18.3 percent

5. There is a significant difference between consent and nonconsent in the percentage that accepted cigarettes offered to them in the last week.

Consent = 4.2 percent

Nonconsent = 11.5 percent

6. There is a significant difference between consent and nonconsent in the percentage that offered others cigarettes in the last seven days.

Consent = 1.8 percent

Nonconsent = 5.8 percent

For the 1981-82 school year, we have implemented a passive consent procedure. This procedure allows students and their parents to sign a postcard indicating that they do not want their child to participate. With this new procedure we have been getting almost total cooperation and participation in the assessment procedures. This consent procedure was carefully reviewed by our Human Subjects Committee and each school district. It is a completely legal and appropriate procedure in that both the child and parent are informed fully about the project, and both are given the option to withdraw at any time. Some students choose not to fill out the questionnaire or give us air or saliva samples. This is their right, and we never pressure anyone to participate.

This consent procedure is being used in all other federally funded smoking prevention projects; it clearly is the only procedure that will yield an accurate assessment of the effects of the program on all students. We encourage use of this consent procedure by all schools implementing our program if assurances can be obtained that participation is voluntary and if both parents and students are fully informed in writing of the project, procedures, and potential risks. Obviously, if a school chooses to implement a smoking prevention program without questionnaires or assessments, no consent is needed, because the program would be integrated into the health curriculum. The research nature of our project necessitates these procedures.

Assessment Procedures

Consenting students (1980-81) participated in a full preintervention assessment and will complete followup assessments at three, six, and twelve months. The preintervention assessment includes completing the smoking

project questionnaire and providing a breath and saliva sample. For 1980-81, nonconsenting and consenting students completed a one-week post-intervention questionnaire requesting demographic information and the frequency of cigarette, alcohol, and marijuana offers and use.

The initial assessment occurs one week prior to the intervention and is conducted in the regular classroom by project staff. The breath and saliva samples test for the presence of carbon monoxide and saliva thiocyanate, respectively. Both tests show elevations in persons who have been smoking and can be used to corroborate self-reported smoking levels. These physiological tests are administered under a "bogus pipeline" procedure in which students are told that the breath and saliva tests can be compared to their self-reports and can accurately corroborate or refute the self-report. The air sample is provided by having each student exhale into a two-liter plastic air bag after holding his or her breath for fifteen seconds. The saliva sample is done by having the student hold a cotton dental roll in the mouth between the cheek and gum for eight minutes while he or she completes the smoking project questionnaire.

This nine-page questionnaire requires approximately twenty minutes to complete. Questions deal with demographic characteristics, smoking habits of family members and friends, attitudes and beliefs concerning smoking, past and present experiences with cigarettes, and use of marijuana and alcohol.

A copy of the complete questionnaire is included in Appendix B. The questionnaire is now printed on "Opscan" sheets that can be electronically scored with the results fed directly into a computer for data analysis. This procedure was instituted in October 1981.

Teacher Participation

The curriculum is written in a detailed manner to increase the standardization of its presentation by different teachers. Each teacher receives two hours of individual instruction. Because of the structured curriculum format, extensive training is not required. Video tape training demonstrations also assist teachers in learning to follow the curriculum. Certainly one benefit of the project for a school district is the experience teachers receive in presenting social skills training in conjunction with their usual teaching techniques. Many teachers find the emphasis on role playing and skill development unique and positive.

As of December 1981, we have trained and observed sixteen teachers to teach the smoking prevention program to approximately 930 students in the Eugene, Springfield, and Bethel school districts. The curriculum was presented by each teacher to one-half of his or her classes, which were randomly chosen by the flip of a coin. The remaining half of the classrooms were assigned as the control units in the research design. Both consenting and nonconsenting students within the selected classes received instruction. The curriculum, a four-day social skills training unit, is described in detail below.

Curriculum Intervention

The P.A.T.H. Smoking Prevention Program was developed with the results of two recent research projects in mind. One of these studies (Thompson 1978), as mentioned earlier, concluded that learning about long-term physiological effects of smoking does not significantly affect a teenager's smoking behavior. Many students have learned that cigarette smoking has long-term effects such as cancer, heart and lung disease, and

emphysema; however, this information has not had a significant impact on their decisions concerning their own smoking behavior. What does seem to have more of an effect upon the teenager's decisions about smoking is information about short-term physiological effects of smoking (New Hampshire Lung Association 1978). Smoking just one cigarette has significant physiological effects, and it appears that teens can focus more directly on immediate effects.

The second premise on which we base our curriculum is that peer pressure is important in determining whether or not teenagers smoke. It has been shown that teenagers whose friends smoke have a greater chance of becoming smokers (Allegrante and others 1977-78). Peer pressure includes both overt and covert pressures to smoke. Pressure situations may be obvious, such as receiving an offer to smoke or seeing an advertisement encouraging smoking. These pressures may also be subtle, such as being with friends, parents, or siblings who are smoking. The prevention program attempts to teach teens how to be sensitive to these pressures and how to deal with them in socially acceptable ways. The goal is to teach students how to refuse offers or respond to pressures in ways that make it clear they do not want to smoke but that help them remain friends with persons who do smoke. This process is called refusal training.

Of the four days in the instructional unit, the first three are consecutive and the fourth, termed a Booster Session, occurs two weeks later. There is also a seventh grade and a ninth grade adaptation of the curriculum. Both rely on the principles of teaching short-term physiological effects and refusal skills.

Seventh Grade Curriculum

As of December 1, 1981, the seventh grade curriculum, as summarized in table 4, has been taught to 930 students in three school districts by sixteen teachers. It was designed for a forty-five minute class period. Each day is divided into several goal-oriented sections, each of which builds upon the previous one. The students are led step-by-step through a series of events that end in their being able to present well-developed examples of skillful refusals. The goals of each section are displayed in table 4. Lecture, video tape modeling, classroom discussion, and role play are the main techniques utilized to accomplish the curriculum goals.

Day 1. The first day is designed primarily to provide the student an overview of smoking problems and to interest him or her in the concept of peer pressure and its role in the initiation of smoking among teenagers. To accomplish this, the day begins with group discussion of what the students' experiences with cigarettes have been through the years, who they know who smokes, and what they, the students, think about cigarette smoking. Following this, students learn about the short-term physiological effects of smoking and also the hazards of experimental smoking. The addictive nature of tobacco is stressed. It is pointed out that smoking just one cigarette not only causes short-term physiological effects, but also increases the student's likelihood of becoming an addicted smoker. In this context stressing the hazards of smoking, students are asked to publicly renew their commitment to be nonsmokers.

Table 4
Overview of Seventh Grade Curriculum

<u>DAY 1</u>	
<u>Section</u>	<u>Subgoals</u>
I	Students will know the main goal of each day.
II	Students will review their attitude toward smoking and what factors may have influenced those attitudes.
III	Students will know four immediate effects of smoking on their bodies.
IV	Students will know that pressures persuade committed nonsmokers to smoke and that experimental smoking can lead to habitual smoking.
V	Students will identify specific situations that may cause them or their friends to feel pressured to smoke cigarettes or marijuana or drink alcohol.
VI	Students will understand that some refusals work better than others. Students will be acquainted with six refusal strategies.
<u>DAY 2</u>	
<u>Section</u>	<u>Subgoals</u>
I	Students will recall the major points of Day 1.
II	Students will know what activities are planned for Day 2.
III	Students will practice a refusal response without pressure to share.
IV	Students will observe the modeling of various refusal responses.
V	Students will be exposed to a wider range of possible refusal responses.
VI	Students will know the importance of having someone support a refusal. Students will know how to provide support to someone refusing a cigarette.
VII	Students will practice a new refusal response without pressure to share.
VIII	Students will observe the modeling of new responses to a new situation.
IX	Students will learn to evaluate the refusal responses and supporter role.
X	Students will be exposed to a wider range of possible refusal and supporter skills.
<u>DAY 3</u>	
<u>Section</u>	<u>Subgoals</u>
I	Students will know what activities are planned for Day 3.
II	Students will know what behaviors are necessary in order for the small group practice to work well.
III	Students will be divided into small groups.
IV	Students will understand the process for presenting a skit to the class.
V	Each group will create a smoking situation and assign the roles of smoker, refuser, and supporter(s).
VI	Students will observe a presentation of student developed smoking situations.
VII	Students will identify strengths of the presented refusals.
VIII	Students will provide feedback regarding the three-day curriculum.

Following this exercise, the concept of peer pressure is introduced through the use of a video tape that depicts teenagers resisting pressure from their friends to smoke cigarettes. Twelve situations are portrayed that show teenagers skillfully saying no to cigarette offers. Following the video tape demonstration, the students review a list of refusal statements that they are told will help them during Day 2 when they will be asked to role play refusing cigarette offers.

Day 2. The major goals of Day 2 are for the students to observe the modeling of refusal role play by their peers, to be able to use effective refusal statements, and to learn to support their friends who are refusing. During the first part of Day 2, students are asked to imagine situations in which they might be offered a cigarette and to write what they think an effective refusal statement might be. They are then asked to volunteer to play out the statements that they have written. During Day 2, only a few of the students will be involved in role play activity. They will become the model for how role playing will be conducted on Day 3. So, in addition to modeling refusal strategies, these students are also modeling how to role play.

These initial role plays are uncomplicated and move quickly. A student offers another student a mock cigarette. The refuser makes the statement. The mock cigarette is immediately offered to another student. Having the role play move quickly and in a positive setting creates an atmosphere of comfort and interest in the role playing technique. After three or four students have had an opportunity to practice refusing a cigarette, the whole class is involved in evaluating which refusals seemed to work better than others and, more importantly, brainstorming what other

types of refusal statements could have been used to effectively resist the pressure to amoke.

In addition to learning refusal statements, the students are taught to be supportive of their friends who may be under pressure to accept a cigarette. A list of supporter statements is reviewed, and in subsequent role plays one student is designated as supporter and asked to practice standing up for a friend who has refused a cigarette.

Repetition and modeling are key elements in the learning occurring in Day 2. At the end of the day, the students are told that on Day 3 everyone will have an opportunity to practice.

Day 3. The goal of Day 3 is to provide every student with a safe and comfortable atmosphere in which he or she can repeatedly practice refusing a cigarette. Dividing the students into small groups and having them practice without the direct attention of the teacher is an important step in creating a more comfortable situation. The small group practice initiates exactly the procedure that was used in front of the classroom during Day 2. Thus, it is familiar and easy to replicate. Every student is asked to participate. Every student is offered a cigarette at least three times and refuses the cigarette each time.

Following the individual practice sessions, each group is asked to develop a skit that portrays a typical situation in which a teenager may be offered a cigarette, an effective refusal statement, and an effective supporter statement. The students are given several minutes to prepare the presentations and are told that they will be evaluated according to the effectiveness of their refusal and supporter statements. Each group presents their skit to the whole class, after which the class discusses whether or not the refusal worked and how it might have been given in a more effective manner.

Nine Grade Curriculum

The ninth grade curriculum is an adaptation of the seventh grade curriculum. It is similar in that it focuses on the short-term physiological effects of smoking cigarettes and peer pressures. The addictive nature of tobacco is addressed and the transition from experimental smoking to regular smoking is emphasized.

The ninth grade curriculum differs from the seventh grade curriculum in its emphasis on specific assertive skills during the second day. Seventh grade students are taught simply to refuse cigarettes and to give reasons for refusing them. In addition, ninth grade students learn the following skills: facing the person they are refusing, standing or sitting in a straight posture, using a serious facial expression, using a serious tone of voice, making a statement of something positive about the person or the situation, suggesting an alternative activity, and leaving rather than arguing.

Following a review of these nine refusal skills, the students watch a video tape that portrays four situations in which a student is being asked to do something that shouldn't be done. For example, the first scene shows two teenage boys on a street corner trying to convince a third to smoke marijuana. In this instance, the student does not handle the situation well. In the final three scenarios, the student utilizes the nine refusal skills that have just been reviewed and demonstrates how peer pressure can be resisted in an effective and friendly manner.

The video tape is stopped after two of the scenes for the class to evaluate how well the refuser utilized the refusing skills. This is an important practice, because the students will be evaluating themselves and

each other in the role play activities occurring after the video tape.

Following the video tape, the teacher reads a hypothetical situation in which a student is being offered a cigarette and asks the students to imagine themselves in such a setting. Next, they are asked to write down what they think would be an effective refusal.

Students then are asked to demonstrate their written responses in front of the class. These role plays differ from those of the seventh grade in that there are fewer students in front of the classroom, the role play lasts longer, the offerer doesn't move as quickly from one student to the next, and the students are evaluated. The class evaluates each role play according to the refusal skills checklist, which is a list of the nine refusal skills. The students then repeat the role play, trying to incorporate into it one of the refusal skills that may have been omitted. Other students are then asked to volunteer to present a role play and be evaluated.

Up to three or four role plays may occur before the students begin to feel comfortable with the idea of utilizing the refusal skills checklist, of practicing in front of each other, and of being evaluated. These activities provide the students with models of what a good refusal can be and how one might best resist peer pressure. It also provides each student with a modeling of how the role play can be conducted and how each of the students will be asked to participate during Day 3.

Day 3 follows the same format as the seventh grade curriculum. In the first part of the period, the students are divided into small groups and asked to practice their refusal skills. The practice is more complicated than the seventh grade's, however, in that each student is asked to use as many of the nine refusal skills as possible, to evaluate

his or her own responses, and to choose which of the skills he or she would like to improve and practice again. Each student is requested to practice a role play in the small group at least three times, each time focusing on a new skill or improvement.

Following the small group practice, each group is asked to develop and present a skit that demonstrates a realistic situation in which a person is experiencing peer pressure--whether that pressure is to smoke cigarettes or marijuana or to drink alcohol--and to portray a refusal response that utilizes the nine refusal skills. After each presentation, the class evaluates the role play according to the refusal skills checklist, and the students may be asked to repeat the role play.

In both the seventh and ninth grade curricula, ten minutes are left at the end of the third day to obtain student evaluations. Forms that the students are asked to complete anonymously are passed out. The form asks students to indicate the degree to which they enjoyed the curriculum, what they learned as a result of the curriculum, what they liked best, what they liked least, and how they would refuse an offer of a cigarette.

Booster Sessions

Booster activities are an important element of any social skills training program. During the second week after the three-day curriculum intervention, the students are asked, at the beginning of each period for five days, to write descriptions of experiences they've had with people who smoke. After five days of the teacher prompting students to be aware of the smoking influences in their lives, a booster session is presented.

During this booster session, the students are congratulated and supported for not smoking and reminded that, though many of them are under

some pressure to conform, most students are resisting the pressure to smoke cigarettes. Also, during the booster session, the refusal skills are reviewed and the results of the five days of written descriptions are utilized. These descriptions are used as a basis for role plays conducted in front of the class. Using descriptions provided by the students helps to create the necessary link between classroom learning and real life experiences.

The students are then divided into small groups to practice the skills they learned two weeks before. In addition, the seventh graders are asked to concentrate on three new skills: giving a serious facial expression, looking directly at the person during the refusal, and suggesting an alternative activity. The small group practice is conducted in the same way it was during the initial intervention. Finally, the students are asked to watch for pressure situations and to use the skills they've learned.

In summary, we have developed a carefully sequenced curriculum that we believe can be easily implemented by teachers as a part of their health program. Our direct observation of the implementation has shown that a wide variety of teachers can use the program and maintain student interest. The value of the program, however, will be demonstrated if we can show that the intervention assists students in dealing directly with those factors that are involved in the initiation and maintenance of cigarette smoking.

The Need to Teach Refusal Skills

It is simply too early to say whether our prevention program is having the effect on cigarette smoking that we hope it will have. To adequately evaluate the program, we need to compare approximately 1,000 students who go through the program with an equivalent group of young people who do not receive the program. The low rate of smoking typically found in seventh grade students makes it very difficult to detect a treatment effect until six months to a year afterwards. As the rate of smoking increases for all students, we expect to detect an effect of our program by showing that the students in the treatment classes have a lower rate of cigarette use than those in the control classes. Considering the length of followup and the number of students needed, we are about halfway through our evaluation of the program.

The Social Environment of Smoking

Already, however, we have a substantial amount of data that attest to the need for a program, such as ours, that teaches young people to refuse cigarettes. The data also suggest that refusal skills could help young people who may be pressured to drink alcohol or smoke marijuana.

We administered our questionnaire to 706 students in five middle schools last school year. The students were seventh graders except in School E, in which 48 eighth graders and 51 ninth graders were also included. The assessment is done just prior to the prevention program and at three, six, and twelve-month intervals.

Table 5 describes the frequency of reported use of cigarettes, marijuana, and alcohol and reports what percentage of students were offered these substances during the previous week. We have tabulated the results by school and sex because there are clear differences between

Table 5

Frequency of Use and Offerings of Cigarettes, Marijuana, and Alcohol
Reported by Students in Five Middle Schools

Cigarettes Smoked. When asked whether they had smoked one cigarette or more in the past week, the students reported "yes" as follows:

	<u>Boys</u>	<u>Girls</u>	<u>Overall</u>	<u>Number of Cigarettes Smoked</u>
School A	10.9%	6.6%	8.4%	68
B	4.6%	16.4%	10.3%	126
C	3.8%	1.2%	2.5%	8
D	10.6%	13.8%	12.3%	445
E	2.0%	4.0%	3.0%	43

Cigarettes Offered. Were you offered a cigarette in the last week? The following results show the percentage of seventh grade students who said they were offered a cigarette.

	<u>Boys</u>	<u>Girls</u>	<u>Overall</u>	<u>Number of Cigarettes Smoked</u>
School A	23.2%	7.9%	14.4%	82
B	13.0%	20.0%	16.5%	78
C	11.5%	9.4%	10.4%	36
D	15.3%	19.1%	17.3%	109
E	3.9%	8.0%	5.9%	10

Marijuana Smoked. Did you smoke pot (marijuana) last week? The results below show the percentage of students saying "yes" to this question.

	<u>Boys</u>	<u>Girls</u>	<u>Overall</u>	<u>Number of Times Marijuana Smoked</u>
School A	16.4%	3.9%	9.2%	34
B	7.4%	9.2%	8.3%	54
C	8.0%	5.9%	6.9%	44
D	11.9%	12.8%	12.4%	113
E	2.0%	4.0%	3.0%	18

Marijuana Offered. Were you offered pot (marijuana) in the past week? The students reported "yes" to this question as follows:

	<u>Boys</u>	<u>Girls</u>	<u>Overall</u>	<u>Number of Times Marijuana Offered</u>
School A	21.4%	9.2%	14.4%	63
B	14.7%	15.4%	15.0%	77
C	13.2%	10.6%	11.8%	74
D	16.7%	14.9%	15.7%	133
E	2.0%	6.0%	4.0%	18

Table 5 (continued)

Alcohol Consumed. Did you have at least one drink of alcohol in the past week? The students reported "yes" to this question as follows:

	<u>Boys</u>	<u>Girls</u>	<u>Overall</u>	<u>Number of Drinks</u>
School A	22.2%	11.8%	16.2%	53
B	27.9%	18.5%	23.3%	98
C	27.6%	10.6%	18.6%	84
D	27.1%	18.1%	22.3%	85
E	17.6%	20.0%	18.8%	33

Alcohol Offered. Were you offered a drink of alcohol in the past week? The following figures show the percentage of seventh grade students who said they were offered alcohol.

	<u>Boys</u>	<u>Girls</u>	<u>Overall</u>	<u>Number of Times Alcohol Offered</u>
School A	21.4%	11.8%	15.9%	46
B	25.0%	16.9%	21.1%	82
C	22.4%	15.3%	18.6%	85
D	18.8%	16.0%	17.3%	76
E	15.7%	22.0%	18.8%	33

Number of Students Assessed

School A	132
B	133
C	161
D	179
E	101
Total	706

Note: School E includes 48 eighth grade students and 51 ninth grade students from a different school district.

sexes and among schools. The number of students responding at each school is given at the bottom of the table.

It is clear from these data that a sizable number of these middle school students are smoking cigarettes and marijuana and drinking alcohol. Judging from their daily reported rate of smoking, most of these cigarette smokers are not yet addicted to cigarettes. Thus, a prevention program is timely for many. Perhaps more importantly, these data indicate that many

more students are being offered cigarettes than are smoking them. As these influence situations continue to occur, more and more students become recruited to smoking. Clearly, it is these situations that they must learn to cope with through effective refusal skills. Given the rate of offers of marijuana and alcohol, it is also clear that refusal skills for these situations could be valuable.

Since we know that teens are more likely to smoke if their parents, siblings, or friends smoke (Biglan and others 1980), data showing the number of closely associated persons who smoke can give us some idea of the likelihood that these students are at risk to become smokers.

Students reported the following about their parents' smoking:

	<u>Mom</u>	<u>Dad</u>
Has never smoked	45%	30%
Used to smoke but quit	20%	26%
They are now smoking	35%	44%

Thus, a large proportion of youngsters have parents who are modelling smoking each day.

Our questionnaire also asks students about the number of brothers and sisters they have, how many of their brothers and sisters smoke, and how many of their friends smoke. Table 6 shows the percentage of sisters and brothers who smoke as reported by male and female students. This table also shows the percentage of boys and girls in our sample who have one or more siblings who smoke. Nearly 18 percent of the boys and 17 percent of the girls have at least one smoking sibling--another frequent and often prestigious model for smoking.

Table 6

Sibling Smoking by Sex

		Number of Siblings Who Smoke					
		0	1	2	3	4	5 or >
BOYS	Smoking Sisters	82.6%	15.1%	1.4%	0.9%	0.0	0.0
	Smoking Brothers	82.1%	13.3%	3.2%	1.4%	0.0	0.0
GIRLS	Smoking Sisters	83.0%	11.3%	2.8%	1.9%	0.0	0.5%
	Smoking Brothers	83.7%	10.2%	2.3%	1.4%	1.4%	0.9%

Having close friends who smoke is the most important risk factor in teenagers taking up smoking (Allegrente and others 1977-78). This is illustrated by our own data. Table 7 shows the percentage of boys and girls who have one or more close friends who smoke. The data are reported separately for students who smoked at least one cigarette in the past week and those who did not smoke. Eighty percent of the smoking boys and 100 percent of the smoking girls have at least one close friend who smokes! Even among nonsmoking students, 30 percent of the boys and 18 percent of the girls have at least one smoking friend. These data suggest that a good deal of skill may be needed to refuse cigarettes, since an unskilled refusal may jeopardize the student's relationships with close friends.

Table 7

Number of Close Friends Who Smoke by Sex of Student

		Number of Friends Who Smoke					
		0	1	2	3	4	5
BOYS	Nonsmoking	70.1%	18.6%	3.6%	4.1%	2.6%	1.0%
	Smoking	20.0%	20.0%	13.3%	13.3%	20.0%	13.3%
GIRLS	Nonsmoking	82.0%	8.0%	6.0%	1.5%	1.5%	1.0%
	Smoking	0.0%	15.8%	47.4%	10.5%	15.8%	10.5%

The First Cigarette

We have also collected data on the teenagers' first cigarette that underscore the importance of social influence on the development of the smoking habit. These data come from a separate sample of 518 sixth through twelfth graders.

Table 8 summarizes responses to three questions about the first cigarette. In response to "How did you get your first cigarette?" 70 percent of the teens said they got their first cigarette from another person. The largest percentage of teens (57) got it from a friend. Thirty-nine percent of those friends were of the same age.

The second question had to do with the number of persons present when the teenagers had their first cigarette. Here we see that 85 percent of the teens were with one or more other people the first time they smoked. This leads us to the third question, "Who were the people with you when you first smoked?" Fifty percent were with a same-age peer. When we include younger and older teens as well, 73 percent were with another teenager.

Taken together, the responses to these questions provide further support for our working assumption that social factors are a critical part of the initiation of smoking.

Table 8

Circumstances of Teenagers' First Cigarette

<u>Possible Responses</u>	<u>N</u>	<u>%</u>	<u>% Social</u>
Question 1: How did you get your first cigarette?			
I bought it	10	3	
I took it without permission	53	18	
I found it	22	8	
It was given to me by an adult	39	13	70
It was given to me by a friend my age	115	39	
It was given to me by an older teen	50	17	
It was given to me by a younger teen	3	1	
N = 292 total smokers			
Question 2: The very first time you ever smoked a cigarette you were:			
alone	45	15	
with one other person	117	40	84
with two or three other people	89	30	
with four or more other people	42	14	
N = 293 total smokers			
Question 3: Circle the people who were with you the first time you ever smoked.			
adult	35	13	86
teenager my age	138	50	
older teenager	46	17	
younger teenager	17	6	
I was alone	40	14	
N = 276 total smokers			

Note: Percentages do not add to 100 due to rounding error.

Conclusion

As these findings demonstrate, teens do receive offers of cigarettes, marijuana, and alcohol from both adults and other teens. Since we know that the use of these substances is lower than the frequency of offers of them, it makes sense to focus on teaching the students effective refusal behavior.

We also know that students are at more risk to become smokers if their friends, siblings, or parents smoke. This was particularly brought home by the results showing that most of the teens who smoke have another smoker as a best friend. The data suggest that the number of friends who are now smoking is related to the probability of a student becoming a smoker. We can infer with some confidence that if a teenager has friends who smoke, he or she will receive offers to smoke.

The parental smoking rates are similar to national data showing that approximately one third of the adult population are smokers. The results of our questionnaire show that approximately 8.5 percent of the seventh grade students smoked at least one cigarette in the past week. Given the current level of adult smoking, we could predict that an additional 23 percent of the students will become regular smokers in the next five years! This transition is what we hope to influence. Although approximately 18 percent of the students admit to having smoked a cigarette, most of them are not yet smoking regularly.

In sum, our prevention program focuses on the peer influence processes and on assisting the students in identifying situational pressures and responding with skillful refusals, as this appears to be the single most important approach available in the prevention of adolescent smoking.

Plans for the Future

Oregon Research Institute's smoking prevention project will continue throughout the 1981-82 school year. The number of subjects involved in the project during the 1980-81 school year was 760. This number reflects both treatment and control students. For the 1981-82 school year, we project that approximately 2,000 students will be involved in the project. Included in this number will be a large sample of ninth and tenth grade students.

Our work with these high school students will be intensified for several reasons. First, a comparison can be made between the seventh and ninth grade treatment classes to determine which shows a greater treatment effect. Second, the smoking rate is higher in the ninth grade, and as a result the impact of the curriculum intervention can be more accurately evaluated. Also, ninth grade students seem to identify with the refusal strategies to a greater degree, possibly because of their exposure to more requests to smoke cigarettes or marijuana or drink alcohol. Some authors believe that ninth grade is a transition time and that the stress of adapting to high school makes students at that age more susceptible to peer pressures to smoke and engage in other risk behaviors (Murray and others 1980).

We have included approximately 300 tenth grade students in our study, for the reason that health was a required class in the Bethel School District at this grade level. This inclusion facilitated our working with this group and will now allow us to make comparisons between seventh and tenth, and ninth and tenth grade levels.

Summary

The Oregon Research Institute has been funded to develop and assess a smoking prevention program in the public schools. For the past two years, we have evaluated a number of interventions, culminating in our present program. The program is designed to be taught by regular classroom teachers as part of their normal health curriculum. The curriculum requires that the teachers receive a minimum amount of instruction prior to implementation with seventh or ninth/tenth grade students.

Two well-developed curriculum guides that spell out in detail the daily instructional plans are included in the program. Copies of these curriculum guides are available to anyone who writes to us at Oregon Research Institute (195 West 12th Avenue, Eugene, Oregon 97401).

We will continue to assess the effects of the program to determine what effect the instruction has on the smoking rate of students. This behavior is a difficult one to affect; however, we hope that our program will demonstrate statistically significant results. We will continue to refine our procedures to develop the most effective prevention program possible. Additional grants to continue our efforts have been requested, but at present the project is only funded until August 1982.

In our plans for future work, we have proposed to develop teaching manuals and instructional guides to assist interested teachers. In addition, a number of video tapes could be produced that would strengthen the program as well as aid in the instruction of teachers. We also propose to develop messages to parents for the purpose of assisting them in dealing with cigarette smoking at home.

We are excited about the prospect of having an impact on teenage smoking. Since this is a serious health problem with lifelong consequences, any reduction in cigarette addiction would be beneficial to society. We believe that public schools can contribute significantly to the health and longevity of their students by encouraging the adoption of health promoting behaviors.

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Appendix A

SAMPLE CONSENT LETTER

Dear Parent:

The Springfield School District is sponsoring a Smoking Prevention Program. The program, under the direction of Dr. Herbert Severson of the Oregon Research Institute, is presented to seventh and ninth grade students by district health and science teachers. The purpose of the project is to teach tennagers about the hazards of cigarette smoking and about ways to resist pressures to smoke. Cigarette smoking among younger teenagers has become a serious health problem. Incorporating this program into the regular school curriculum may be the best approach to this problem. The District views the program as a strong component of our ongoing efforts to enhance the health of our students.

The Smoking Prevention Program consists of a four day curriculum developed by Oregon Research Institute and taught by the regular classroom teacher. Another component is an evaluation that assesses the effectiveness of the curriculum. This evaluation includes a measurement of each student's breath and saliva for by-products of smoking, and a questionnaire regarding students' knowledge of and experiences with, cigarette smoking, marijuana, and alcohol use. The evaluation occurs prior to the program and three, six, and twelve months later. NO student is asked to smoke a cigarette as a part of the project. All information is kept strictly confidential and is only reported in summary form to the school district.

The four day smoking program is part of the school health instruction curriculum and your child will participate as part of regular classroom activity. The physiological measures (breath test and saliva test), and other evaluation procedures (questionnaires) are the research components and participation in them is voluntary. The evaluation will help Oregon Research Institute and the school judge the effectiveness of the curriculum.

This project is funded by the National Institute of Child Health and Development. Participation in the evaluation is completely voluntary and your child may discontinue participation at any time. Prior to each session the voluntary nature of this evaluation will be announced in the class and the students will not be urged to participate in the assessment if they do not want to.

If you have any questions about this project, please call me at school (726-3368) or call Dr. Severson's staff at 484-2123.

If you have any objection to your child's participation in the evaluation of this project, please check the box below, sign this form, and see that it is returned by your child to their health teacher and/or fill out the attached postcard and put it in the mail. By allowing your child to participate, you can help them avoid smoking and you can help us develop better health programs.

STUDENT: I do NOT wish to participate

Name - Please Print

NAME OF SCHOOL: Thurston Middle School

Signature

PARENT: I do NOT wish my child to participate.

DATE: _____

Parent or Guardian signature

Appendix B



**OREGON RESEARCH
INSTITUTE**

SMOKING



Questionnaire

PLEASE DO NOT WRITE IN THIS SPACE

TIME	IDENTIFICATION NO.	SCHOOL	TEACHER	PERIOD	TEACHER ID.	CO READING	REFUSAL RESPONSE
1	9 9 0 0	9 9 0 0 0 0	1 1 1 1 1 1	2 2 2 2 2 2	3 3 3 3 3 3	4 4 4 4	5 5 5 5
2	1 1 1 1	1 1 1 1 1 1	2 2 2 2 2 2	3 3 3 3 3 3	4 4 4 4	5 5 5 5	6 6 6 6
3	2 2 2 2	2 2 2 2 2 2	3 3 3 3 3 3	4 4 4 4 4 4	5 5 5 5	6 6 6 6	7 7 7 7
4	3 3 3 3	3 3 3 3 3 3	4 4 4 4 4 4	5 5 5 5 5 5	6 6 6 6	7 7 7 7	8 8 8 8
5	4 4 4 4	4 4 4 4 4 4	5 5 5 5 5 5	6 6 6 6 6 6	7 7 7 7	8 8 8 8	9 9 9 9
6	5 5 5 5	5 5 5 5 5 5	6 6 6 6 6 6	7 7 7 7 7 7	8 8 8 8	9 9 9 9	0 0 0 0
7	6 6 6 6	6 6 6 6 6 6	7 7 7 7 7 7	8 8 8 8 8 8	9 9 9 9	0 0 0 0	1 1 1 1
8	7 7 7 7	7 7 7 7 7 7	8 8 8 8 8 8	9 9 9 9 9 9	0 0 0 0	1 1 1 1	2 2 2 2
9	8 8 8 8	8 8 8 8 8 8	9 9 9 9 9 9	0 0 0 0 0 0	1 1 1 1	2 2 2 2	3 3 3 3
0	9 9 9 9	9 9 9 9 9 9	0 0 0 0 0 0	1 1 1 1 1 1	2 2 2 2	3 3 3 3	4 4 4 4

DIRECTIONS

1. Use a No. 2 pencil. Make heavy, dark marks.
2. Begin by filling out Today's Date then go on to answer the rest of the questionnaire.
3. Please answer each question carefully.
4. If you make a mistake or change your mind, please erase thoroughly.
5. You are now ready to begin. Ask for help if you are not sure about an answer.

TODAY'S DATE			MALE ☐	FEMALE ☐	BIRTHDATE			GRADE
MO	DAY	YR			MO	DAY	YR	
JAN	☐			JAN	☐			
FEB	☐			FEB	☐			
MAR	☐	0 0 0 0		MAR	☐	0 0 0 0		
APR	☐	1 1 1 1		APR	☐	1 1 1 1		6 ☐
MAY	☐	2 2 2 2		MAY	☐	2 2 2 2		7 ☐
JUN	☐	3 3 3 3		JUN	☐	3 3 3 3		8 ☐
JUL	☐	4 4 4 4		JUL	☐	4 4 4 4		9 ☐
AUG	☐	5 5 5 5		AUG	☐	5 5 5 5		10 ☐
SEPT	☐	6 6 6 6		SEPT	☐	6 6 6 6		11 ☐
OCT	☐	7 7 7 7		OCT	☐	7 7 7 7		12 ☐
NOV	☐	8 8 8 8		NOV	☐	8 8 8 8		
DEC	☐	9 9 9 9		DEC	☐	9 9 9 9		

1. How many people usually live in your home including yourself?	2. How many bedrooms in your home?	3. How many sisters and/or step-sisters do you have?	4. How many brothers and/or step-brothers do you have?
0 0 people	0 0 bedrooms	0 0 sisters	0 0 brothers
1 1	1 1	1 1	1 1
2 2	2 2	2 2	2 2
3 3	3 3	3 3	3 3
4 4	4 4	4 4	4 4
5 5	5 5	5 5	5 5
6 6	6 6	6 6	6 6
7 7	7 7	7 7	7 7
8 8	8 8	8 8	8 8
9 9	9 9	9 9	9 9

5. How far do you plan to go in school?

- ☐ I may not finish high school
- ☐ I plan to finish high school
- ☐ I plan to train on-the-job or in a vocational program
- ☐ I plan to go to college

6. How far did your mother or stepmother (whoever lives with you) go in school?

- ☐ elementary or less
- ☐ completed junior high (or middle school)
- ☐ some high school
- ☐ completed high school
- ☐ some college or community college or vocational school
- ☐ graduated from college

7. How far did your father or stepfather (whoever lives with you) go in school?

- ☐ elementary or less
- ☐ completed junior high (or middle school)
- ☐ some high school
- ☐ completed high school
- ☐ some college or community college or vocational school
- ☐ graduated from college



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DO NOT WRITE IN THIS SPACE

- ☐ she never has
- ☐ she used to, but she quit
- ☐ she smokes less than a pack a day
- ☐ she smokes about a pack a day
- ☐ she smokes more than a pack a day

- ☐ he never has
- ☐ he used to, but he quit
- ☐ he smokes less than a pack a day
- ☐ he smokes about a pack a day
- ☐ he smokes more than a pack a day

- ☐ A. I sometimes smoke when a friend offers me a cigarette.
- ☐ B. I would make a special trip to the store if I ran out of cigarettes.
- ☐ C. I have touched a cigarette (that means just touched it).
- ☐ D. I want to smoke when I get up in the morning.
- ☐ E. I have smoked a whole cigarette by myself.
- ☐ F. I have held a lighted cigarette.
- ☐ G. I have inhaled smoke drawn through my cigarette.
- ☐ H. I will smoke tomorrow.
- ☐ I. I have had one or more puffs on a cigarette.
- ☐ J. I have tried to quit smoking, but couldn't.
- ☐ K. I smoke more than 10 cigarettes every day.
- ☐ L. I have been with friends who were smoking.
- ☐ M. I usually inhale when I smoke.
- ☐ N. I smoke, but no more than one cigarette a week.
- ☐ O. I have given cigarettes to friends.
- ☐ P. I have felt like trying a cigarette.
- ☐ Q. I smoke more than one cigarette a week.
- ☐ R. In the last month, I have smoked one or two cigarettes "just to try" them.
- ☐ S. I smoke at least one cigarette a day.
- ☐ T. I have bought a pack of cigarettes for myself.

☐ I have never tried even a puff on a cigarette.

Please tell us if any of the following happened to you in the LAST WEEK.

Yes No 12. I was with an adult who was smoking cigarettes.

Yes No 13. I was with teenage girls who were smoking cigarettes.

Yes No 14. I was with teenage boys who were smoking cigarettes.

For the next set of questions, please tell us how many TIMES each of these happened to you in the LAST WEEK. If you can't remember exactly, give us your BEST guess.

☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ more than 10

☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ more than 10

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ more than 10

☒ 0 ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 10 ☐ more than 10

☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ more than 10

21. How many times in the LAST WEEK did you smoke a cigarette when no one else was around?

			DIRECTIONS: • Write in the number • If you did not smoke, write "00" • Fill in the circle below each box that has the same number as in the box.				
cigarettes	0	0				0	0
	1	1				1	1
	2	2				2	2
	3	3				3	3
	4	4				4	4
	5	5				5	5
	6	6				6	6
	7	7				7	7
	8	8				8	8
	9	9				9	9
cigarettes smoked alone							

☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ more than 10

☐ 0 ☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☒ 7 ☐ 8 ☐ 9 ☐ 10 ☐ more than 10

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24. I was offered a cigarette in the LAST WEEK.

YES NO
☐ ☐

DIRECTIONS:

If you answered YES to Question 24 above, "I WAS OFFERED A CIGARETTE IN THE LAST WEEK," tell us WHERE YOU WERE and WHAT YOU DID or SAID when this cigarette was offered. Do not write in the spaces if you were not offered a cigarette.

24a. WHERE WERE YOU when the cigarette was offered? (WRITE IN THE BOX ONLY.)

24b. WHAT DID YOU SAY or DO when the cigarette was offered? (WRITE IN THE BOX ONLY.)

25. Does your best friend smoke cigarettes now?

YES NO
☐ ☐

26. How many of your 5 closest friends smoke cigarettes?

0 1 2 3 4 5

27. How many of your sisters or step sisters smoke cigarettes?

0 1 2 3 4 5 6 7 8 9 10 ☐ more than 10

28. How many of your brothers or stepbrothers smoke cigarettes?

0 1 2 3 4 5 6 7 8 9 10 ☐ more than 10

29. How did you get your first cigarette? (Mark only one answer)

- ☐ I bought it
☐ I took it without permission
☐ I found it
☐ It was given to me by an adult
☐ It was given to me by a person my age
☐ It was given to me by an older teen
☐ It was given to me by a younger teen

☐ I have never had a first cigarette

30. The very first time you smoked a cigarette were you:
(Mark only one answer)

- ☐ alone
☐ with one other person
☐ with 2 or 3 other people
☐ with 4 or more people

☐ I have never had a first cigarette

31. Who was with you the first time you smoked a cigarette?
(Mark all the people who were with you)

- ☐ No one was with me
☐ An adult
☐ A boy(s) my own age
☐ A girl(s) my own age
☐ Older girl(s)
☐ Older boy(s)
☐ Younger girl(s)
☐ Younger boy(s)

☐ I have never had a first cigarette.

32. How old were you when you started smoking cigarettes
EVERYDAY? (That means at least 1 cigarette a day)

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

☐ I have never smoked EVERYDAY

33. What BRAND do you smoke now?

If you don't smoke, leave the box blank and go the Question 34 on the next page.

BRAND
NAME

33a. What SIZE cigarette is your BRAND?
(Mark only one answer)

- ☐ King
☐ Regular
☐ 100 mm
☐ 120 mm

DO NOT WRITE IN THIS SPACE

DIRECTIONS:
Please read each of the following statements carefully and tell us how you feel about that statement.

1. STRONGLY AGREE - SA	MILDLY DISAGREE - MD
MILDLY AGREE - MA	STRONGLY DISAGREE - SD
NO OPINION - N	

39. Cigarette smoking can harm the health of teens.	☒ A ☒ B ☒ C ☒ D
40. Cigarette smoking should be forbidden inside public places.	☒ A ☒ B ☒ C ☒ D
41. Smoking cigarettes gives you a good feeling.	☒ A ☒ B ☒ C ☒ D
42. Cigarette smoking is harmful only if the person inhales.	☒ A ☒ B ☒ C ☒ D
43. If you don't smoke cigarettes, other teens put you down.	☒ A ☒ B ☒ C ☒ D
44. Kids who smoke are show-offs.	☒ A ☒ B ☒ C ☒ D
45. I feel good knowing I can turn to my parents for advice.	☒ A ☒ B ☒ C ☒ D
46. I don't want to get hooked on anything, including cigarettes.	☒ A ☒ B ☒ C ☒ D
47. When I get older, I will smoke every day.	☒ A ☒ B ☒ C ☒ D
48. If I smoke cigarettes and my parents found out they would really be mad.	☒ A ☒ B ☒ C ☒ D

49. Carbon monoxide from cigarette smoke replaces oxygen in the blood. TRUE FALSE
☒ T ☐ F

50. Your heart beats slower when you smoke a cigarette. TRUE FALSE
☐ Y ☐ F

81. What would you say is the possibility that ONE YEAR from now you will smoke cigarettes at least occasionally? (Mark only one answer)

☐ Definitely will not

☐ Probably won't

☐ About a 50/50 chance

☐ Probably will

☐ Definitely will

52. For each of the statements below, answer YES if the statement applies to you. Fill in the NO if the statement is not true of you.

YES NO

- ☐ ☐ A. I have had a sip of an alcoholic beverage.
- ☐ ☐ B. I have talked to friends about smoking marijuana.
- ☐ ☐ C. I have held a glass of wine, beer, or hard liquor.
- ☐ ☐ D. I occasionally smoke marijuana.
- ☐ ☐ E. I sometimes drink alcohol when it is offered to me.
- ☐ ☐ F. I have had one or more puffs on a marijuana cigarette.
- ☐ ☐ G. I have felt "drunk" from drinking alcohol.
- ☐ ☐ H. I drink alcohol daily.
- ☐ ☐ I. I have purchased marijuana.
- ☐ ☐ J. I smoke marijuana at least once a week.
- ☐ ☐ K. I have been around people who are drinking alcohol.
- ☐ ☐ L. I sometimes smoke marijuana when it is offered to me.
- ☐ ☐ M. I have touched a marijuana cigarette.
- ☐ ☐ N. I drink alcohol at least once a week.
- ☐ ☐ O. I have seen marijuana.
- ☐ ☐ P. Sometime in the last week I have had 5 or more glasses of beer, wine, or hard liquor IN ONE DAY.
- ☐ ☐ Q. I have been around people who were smoking marijuana.
- ☐ ☐ R. I have tried beer, wine, or hard liquor once or twice.
- ☐ ☐ S. I smoke marijuana daily.
- ☐ ☐ T. I have had an entire glass of beer, wine, or hard liquor.

DO NOT WRITE IN THIS SPACE

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